



Pacific Island Network Quarterly

Quarterly Newsletter of the
Pacific Island Network (PACN)
Inventory & Monitoring Program
Oct. – Dec. 2009, Issue no. 18



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Memorial Park's
birds become a
faded
memory?

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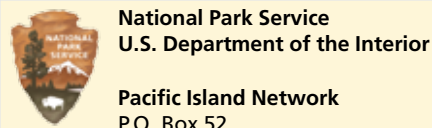
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American
Memorial Park's
Bird Trouble

Although the birdlife on
Saipan is currently stable,
a sinister threat lays in
waiting.

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Photo: white tern (*Gygis alba*)



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The National Park Service (NPS) has implemented natural resource inventory and monitoring on a servicewide basis to ensure all park units possess the resource information needed for effective, science-based management, decision-making, and resource protection.

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NOTE: Unless indicated all photos and articles are NPS.
Contributors: CGAPS (brown tree snake head), M. Rauzon (AMME bird photos), C. Nash, S. Nash, A. Addlesberger, T. Jones, D. Cardea, C. Rillahan, V. Vaivai

Outreach and Staffing Update

Outreach
I&M participated in the annual KAHO kids cultural festival in mid-November. This festival gave us the opportunity to engage with scores of W. Hawaii 4th and 5th graders about anchialine pools and the watershed.

The PACN I&M program entered the social media age with several entries to the Pacific Island Parks blog <http://pacificislandparks.com/> and instant communications on Twitter (PACNscience). The program also released five Vital Signs video podcasts on iTunes.

I&M has continued its partnership with the University of Maryland Center for Environmental Studies by completing poster and flier projects for HAVO and KALA.

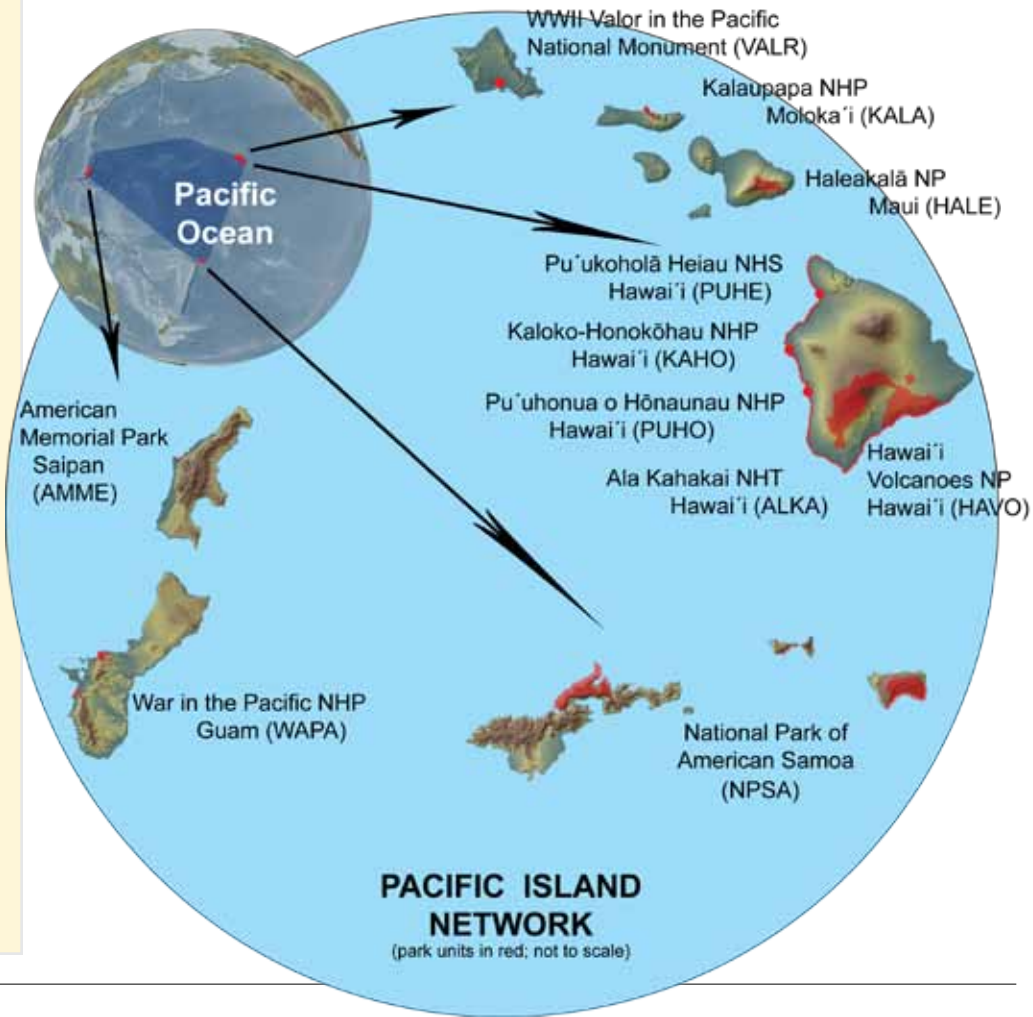
Staffing Update
NPS: Visa Vaivai, new I&M biotech at NPSA, came on board in late October. She brings several years of diverse experience working with Samoan flora and fauna to the program.

We look forward to having her as part of the I&M team.

Anne Farahi has officially joined the NPS aquatic team as a biotech after a long stint as a volunteer and temporary employee.

COOPERATORS: Funding for long time cooperator and GIS magician, Viet Doan, has been exhausted and we will unfortunately be losing his services through the CESU by January 2010. Viet has done a great job as a GIS Specialist for the program and the network parks over the past five years. Because of his expertise the program has rehired Viet as an NPS emergency hire to fill the gap until a permanent GIS Specialist can be hired.

Kazuki Kageyama has swapped cooperator assignments and now works through the University of Hawaii at Hilo on the Fish Harvest protocol with Dr. Jim Beets.



Featured Staff - Biotechs in W. Pacific Parks

Chris Rillahan migrated to the warm waters of Guam in December 2008, just as the winter chill settled on his hometown of Boston, Massachusetts. He decided to hang up his drysuit, 7mm hood, and gloves after graduating from the University of New Hampshire, where he studied fish behavior on an experimental open ocean aquaculture project. Now, as a Technician and Dive Safety Officer, Chris is working on projects for the Inventory and Monitoring, Program in War in the Pacific NHP on Guam, and American Memorial Park on Saipan. He has helped to initiate freshwater aquatic surveys and water quality protocols in both parks. He also works on the parks' marine protocols. Watershed erosion has led Chris to investigate coral recruitment rates and the accumulation of sediment on the reef. Even when he is not working, Chris spends his time near the ocean. The Pacific is a great place for him to explore through snorkeling, running with his boonie dog on the beach, diving, surfing, and learning to kiteboard.



Visa Vaivai is from American Samoa. She began conservation work when she was hired by the American Samoan Department of Marine and Wildlife Resources as a clerk. She was only there for one day before she applied for a position with the Wildlife Division as a technician. It was there that she developed a passion for wildlife. While working 8 hours a day, she also took classes at the community college and earned an Associates of Science degree in

Natural Resources. After seven years at the Department of Marine and Wildlife Resources, she gained knowledge and experience which she will gladly share and use throughout her new biotech position with the National Park Service. She looks forward to working and learning more about conservation and management projects within the region and especially in Samoa. Visa especially loves the field work. HOORAH!

Calendar and Monitoring Schedule

January 9 – 17	Marine ecologist Larry Basch travels to Guam to work on Environmental Impact Statement
January – March	Water quality work throughout the network from January through March
January 25 – February 14	Freshwater streams monitoring at War in the Pacific National Historical Park
January	Vegetation mapping field data collection at Hawai'i Volcanoes National Park (Kahuku) Vegetation mapping field data collection at the National Park of American Samoa (Tutuila) Mapping accuracy assessment field work in West Hawai'i national park units
February 3 – 5	Groundwater monitoring protocol implementation at American Memorial Park
February	Vegetation mapping field data collection on Tutuila in the National Park of American Samoa Vegetation mapping field data collection at Hawai'i Volcanoes National Park
March 19 – April 1	Marine fish monitoring in the National Park of American Samoa Benthic marine monitoring at the National Park of American Samoa
March	Anchialine pools field testing at Hawai'i Volcanoes National Park
March	Mapping accuracy assessment field work in West Hawai'i national park units Vegetation mapping field data collection at Hawai'i Volcanoes National Park

Bird Inventory of American Memorial Park

Mariana moorhens are spotted !

A twelve-day survey of aquatic and forest birds was conducted this July at American Memorial Park (AMME), Saipan, to determine bird abundance with a special focus on the endangered Mariana moorhen (*Gallinula chloropus guami*). The bird inventory covered a total of six transects for both the core wetland natural area (30 acres) and the smaller strand forest (4.9 acres) along the shoreline. Mark Rauzon recorded ten Mariana moorhens within the wetland area of the park. Previously, only anecdotal reports accounted for the waterbird in AMME with many surveys having bypassed park lands altogether.

A total of 948 birds were observed from 17 species. The most common bird reported was the bridled white-eye (*Zosterops conspicillatus*), making up almost 28% of all birds recorded. The Micronesian honeyeater (*Myzomela rubratra*), golden white-eye (Cleptornis



A Micronesian honeyeater (*Myzomela rubratra*) stands out against the lush green fern.

marchei), rufous fantail (*Rhipidura rufifrons saipanensis*), and white tern (*Gygis alba*) were also commonly seen in the survey. Two other endangered and endemic bird species of note included four Nightingale reed-warblers (*Acrocephalus luscinia*) in the wetland and a flock of Mariana swiftlets (*Collocalia bartschi*) along the coast. The little tern (*Sternula albifrons*) was also seen flying over the park shoreline and constitutes a new species for the park.

This inventory reinforces the importance of AMME’s wetland and forest strand areas to the birds of Saipan.

The elusive Mariana moorhen (*Gallinula chloropus guami*) takes cover behind some reeds.



GPS Photo Files and Google™

Have you ever wanted to explore the art of GPS Photo Files...Hello Google Earth™!

For most people Google™ has become a household name, but for those of us a little less technologically savvy, Google Earth™ might be something new. If you haven’t heard of it before, Google Earth™ can best be described as a way to view the world...from your computer and for free! Once downloaded, Google Earth™ allows you to view high resolution aerial and satellite imagery, photos, terrain, road and street labels, business listings, and more. It also allows users to explore geographical content, save viewed places, and share information with others.

Since some cameras now have GPS capabilities (or hand-held GPS units are being used in combination with digital cameras), we have the ability to link images to their locations on earth. But what does this really mean? Well...using Google Earth™ and GPS-Photo Link© (software developed by the company Geospatial Experts), digital images can quickly and

easily be linked to GPS coordinates and viewed in digital maps.

Using GPS-Photo Link©, each digital image is assigned a point location (coordinates). These point locations are stored in .kml files. KML or Keyhole Markup Language is a file format for storing geographic features such as points, lines, images, polygons, and models for display in Google Earth™. KML files can then be used to share information with other Google Earth™ users. With just one click on a virtual



thumbtack, users will see a pop-up image of that location.

Google Earth™ and GPS-Photo Link© are great tools for many of the Inventory and Monitoring protocols conducted in the Pacific Island Network. Field crews using GPS cameras or digital cameras and hand-held GPS units now have a new way to view the images they record. These products (the images and .kml files) can also be distributed to parks to use as an interpretation tool for online visitors, natural resource managers, or anyone else that might be interested in learning more about the parks.

If you’d like to learn more about Google Earth™ and its functionality go to: http://earth.google.com/intl/en/userguide/v5/ug_toc.html

To learn more about GPS-Photo Link© go to: <http://www.geospatialexperts.com/>

Pacific Island Network — Featured Resource

Marine Fish Monitoring

Network Parks Where Fish are Monitored

- National Park of American Samoa
- War in the Pacific NHP
- Kaloko-Honokōhau NHP
- Kalaupapa NHP

Importance

Marine fish are a vital resource to Pacific island human populations. However, fish stocks throughout the Pacific are threatened by overfishing, habitat loss, and environmental changes. Recent technological advances in fishing techniques and gear lead to increased catch, especially of predatory fish like sharks, groupers, and snappers as well as large wrasses and parrotfish. These advances, among other factors, have led to declines in fish biomass and species shifts in fish communities. Fish communities are an important component of coral reef ecosystems. Shifts in fish communities can have long lasting impacts on coral reef systems as a whole. Moreover, because of the significant role that fish play in this system, and their potential for exploitation, it is crucially important to monitor this resource.

Long-Term Monitoring

Monitoring of marine fish is focused on daytime, non-cryptic species, in the 10 – 20 meter (approximately 30 to 60 feet) depth range. The process consists of a single diver swimming a 25 meter transect while identifying, counting, and sizing all of the fish noted within that transect. If necessary due to significant diversity, a second pass of the transect is conducted. In this case, the first pass focuses on the more transient fish and the second pass focuses on the territorial fish species.

Monitoring Objective

The primary objective of this monitoring effort is to annually determine the density, biomass, size, and community structure of reef fishes at sites randomly selected over hard seafloors in an area between the 10 and 20 meter depths.

Management Applications

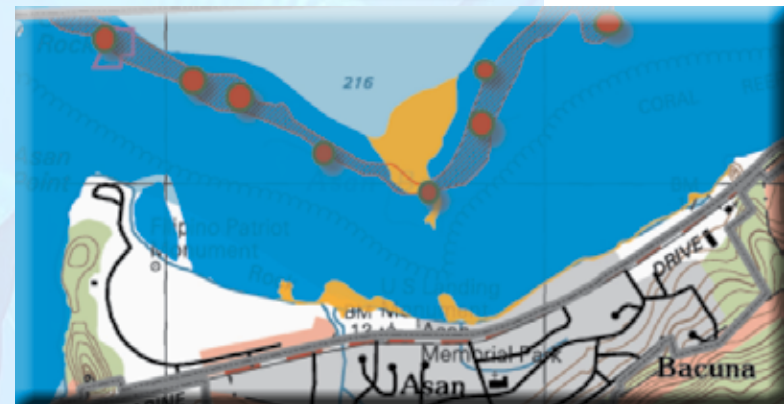
Obtaining trend information through monitoring will allow managers to understand what changes are occurring within this community and at what rate. This enables managers to target potential problem areas that can be addressed, both within and external to park jurisdictional boundaries.

Network website: <http://science.nature.nps.gov/im/units/pacn/>

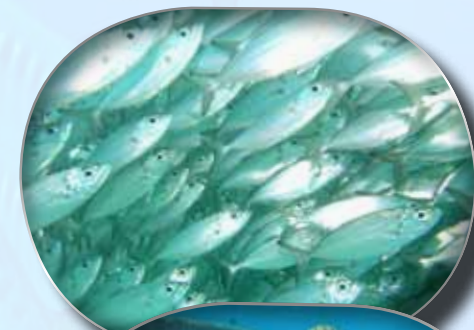
Resource website: http://science.nature.nps.gov/im/units/pacn/monitoring/vs_fish_marine.cfm



Schooling spadefish search the reef for food.



Fish sampling sites in the Asan Marine Unit in War in the Pacific National Historical Park. The cross-hatching indicates the targeted sampling area while the red dots indicate actual sampling locations.



Bigeye scad in a baitball enjoy the safety of numbers.



Diversity of fish on a coral reef in American Samoa illustrates the many niches fish species occupy in the reef ecosystem.



A clownfish seeking shelter in an anemone is just a part of the complex coral reef ecosystem at risk.

Haleakalā National Park: *A Ranger's Perspective*

Journeying from the coral reefs off Kīpahulu, up the valleys, through the clouds, past forests of giant koa, and into the realm of silverswords and gods, one cannot truly remain unchanged. The fact that it is possible to go to a place of such diversity steeped in tradition and legend is remarkable. The fact that it can be experienced in a single day is almost astounding.

Everything at Haleakalā came from far away and changed as a result of making the journey to the “house of the sun.” The very rocks that created the island transmuted from deep mantle proto-rock to fiery lava and red cinders. Most rock in the world is far more provincial and less traveled; being derivations of surface material. Haleakalā lava rocks built a 10,023 foot mass so large it bends the crust beneath it. Because of its bulk in the middle of a vast ocean, Haleakalā provides most every kind of habitat found on earth in one small place; deserts, rainforest, tundra, streams, bogs, wet, dry, cold, and hot.

Canoes fashioned in distant lands brought the first peoples to these remote islands. They began their trips as Polynesians, but in time the land and the unique life on the new islands transformed the culture – and they became Hawaiians. The abundance of life on Haleakalā in all its myriad forms was the raw material of culture. Eventually, nature and culture were inseparable. So much so that today when the park practices natural resource protection and preservation it is helping to maintain, perpetuate, and reconnect Hawaiians with their culture.

For example, some of the rocks at the summit of Haleakalā crystallized into fine-grained dark stone prized by the adze makers of old Hawaii for their strength. Pilgrims from the coast would brave the journey up to the realm of the gods to quarry these special rocks for tools. Others clad in capes of Ti leaves would brave the night to transform

themselves into kilo hōkū (star gazers-navigators).

A landscape that is both remote and high are key factors to the unique species that would eventually inhabit the islands. Anything that survived the long journey to Hawaii had many ecological niches to choose from when it arrived. Thus birds flourished and specialized into different varieties. Many ecological niches occupied by mammals on a continent became the domain of birds in Hawaii.



Instead of herds of grazing ungulates, geese inhabited the grasslands of Maui. Plants, insects, and birds adapted to each other in an evolutionary dance that only time can count.



More recently, the degree of change at Haleakalā National Park has become a concern to scientists, park managers, and visitors. Introduced species and pests are crowding out native species, and new diseases arrive and decimate populations of people and animals.

Before people arrived, a species naturally took hold in Hawaii once every 30,000 years or so. Now with modern air travel countless new species arrive to Maui every week as seeds on clothing, insects on imported plants, or bacteria on new fruits. Perhaps this is the most profound paradox of all. By making the journey to see this special place, we are both changed by what we see, and are changing the landscape at the same time.

The hope for the future is that visiting Haleakalā National Park is so life changing that visitors and residents alike are compelled to act on behalf of the land. Just as Haleakalā has changed throughout millennia, we hope that visiting a National Park is a transformative event for every individual who comes to experience it.

–D. Cardea



"In an attempt to understand the interwoven nature of the ecosystems on Haleakalā, scientists are returning to the nineteenth century traditions of the naturalist. They catalog and explore the island, mapping and noting locations of plants and animals. Technology such as Geographic Information Systems adds a modern twist to the hand drawn maps of old. The result is a beautiful mosaic of colors and shapes that belong in a museum of art as much as they do in a laboratory."

–D. Cardea, Ranger





Birds of American Memorial Park *Can we keep them safe?*

Saipan in the Commonwealth of the Northern Mariana Islands has vibrant bird life. A recent inventory of the forest birds of American Memorial Park turned up a beautiful array of species within the park's forest and mangroves. It may be difficult to tell from the cheery colors of the Micronesian honeyeater (*Myzomela rubratra*) or the Mariana fruit dove (*Ptilinopus roseicapilla*), but imminent danger is lurking just around the corner. Just one hundred and twenty miles to the South, War in the Pacific National Historical Park on Guam paints a much gloomier picture. In one of the most traumatic depictions of the devastating effects of invasive species, Guam's bird life has been nearly exterminated by the introduced brown tree snake (*Boiga irregularis*). In as little as 50 years, Guam went from having spectacular birds of its own to the point where bird song is no longer part of the ambiance in the forests, and bird-eating snakes lurk in every corner.

Fortunately, although brown tree snakes have been reported, this fate has not yet befallen Saipan. Vigilance at the ports of entry coupled with a determined snake control task force has been the only way to abate this pestilence and keep Saipan's unique bird populations alive and thriving. To learn more visit: http://hawaiiconservation.org/_library/documents/2008hcc/presentations/camp-opt.pdf and http://www.hear.org/species/boiga_irregularis/pdfs/stopthebts20080422.pdf



bridled white-eye
(*Zosterops conspicillatus*)



little terns (*Sterna albifrons*)



white-throated ground-dove
(*Gallicolumba xanthonura*)



orange-cheeked waxbill
(*Estrilda melpoda*)



golden white-eye
(*Cleptornis marchei*)



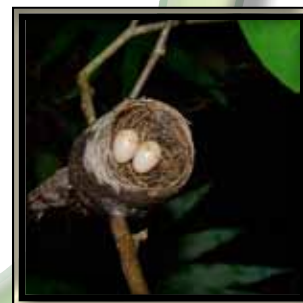
Micronesian honeyeater
(*Myzomela rubratra*)



Mariana fruit dove
(*Ptilinopus roseicapilla*)



Pacific reef heron
(*Egretta sacra*)



rufous fantail (*Rhipidura
rufifrons saipanensis*) nest

— C. Nash